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(56) Documents Cited

GB 2212844 A GB 1583925 A EP 0437964 A2
EP 0385028 A1 EP 0117747 A2

(58) Field of Search

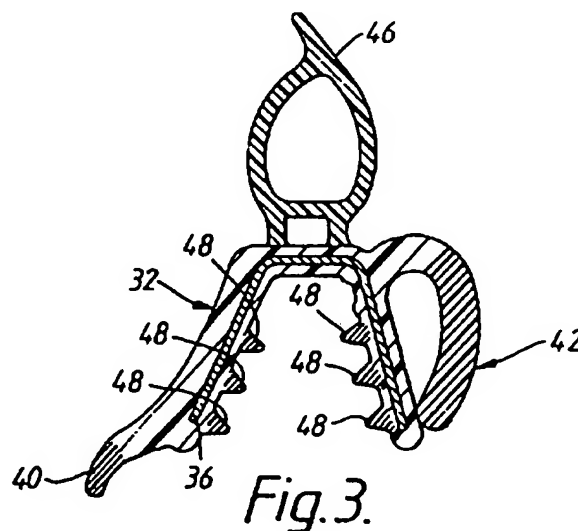
UK CL (Edition O) E1J JGN JM
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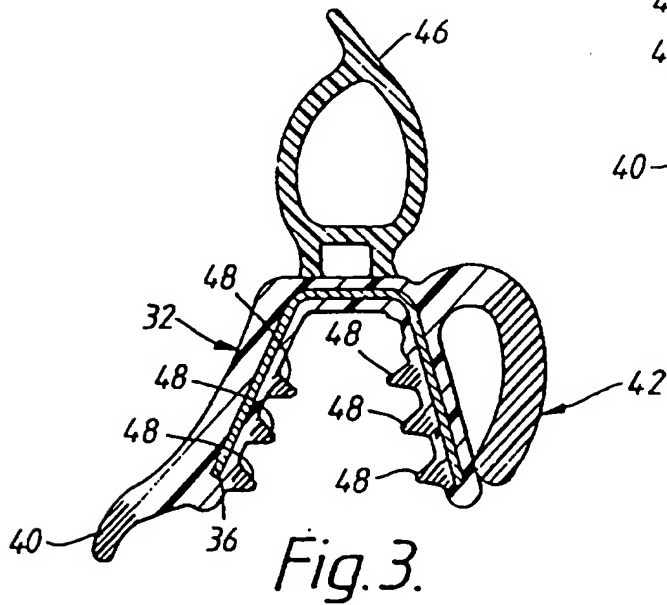
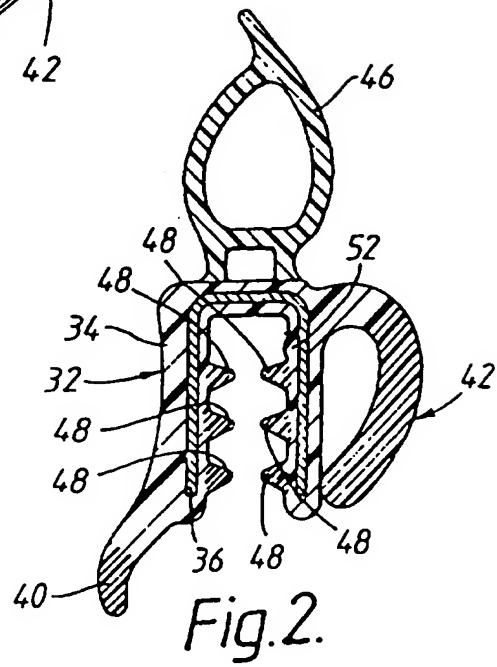
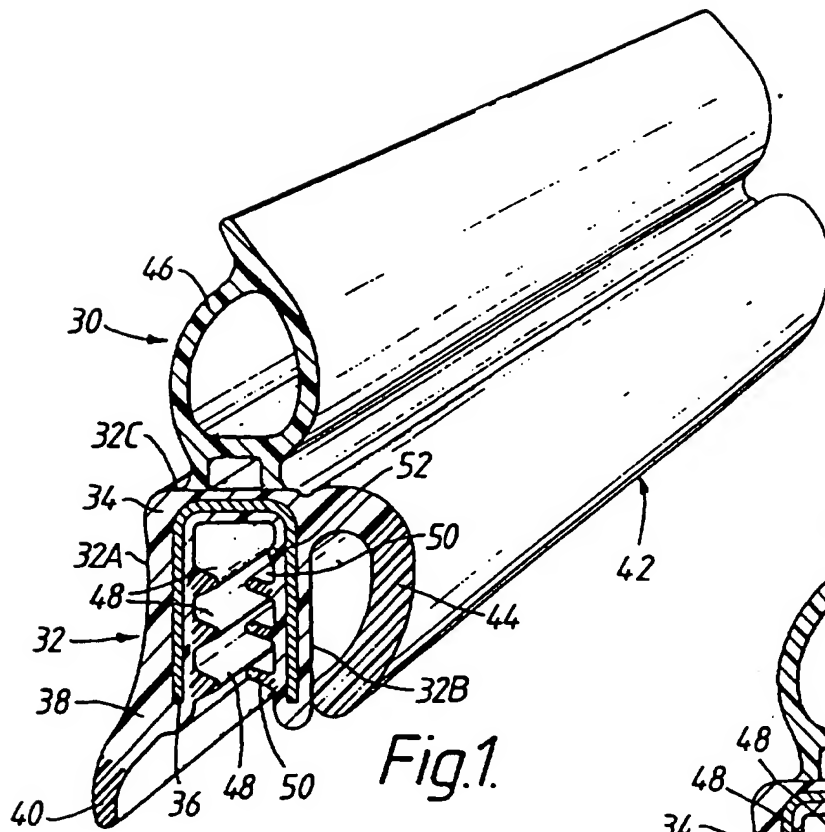
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(54) Channel shaped sealing strip with divergent side walls and formations of cellular material

(57) A sealing, trimming or finishing strip, such as for mounting on an edge flange defining the frame of a closable opening in a motor vehicle body, comprises a channel-shaped gripping section 32 of extruded material incorporating an embedded metal carrier 36 and defining inwardly directed lips 48 (50, figure 1). At least the lips 48 on one side of the channel are of triangular shape in cross-section. All the lips 48 (50) are made of cellular material, such as a sponge or foamed material. In order to mount the strip on a flange, its side walls are initially splayed apart so that it can be mounted without damage to or distortion of the lips 48 (50). After mounting, a suitable tool is used to press the side walls into a generally parallel configuration so that the lips are in sealing contact with the side faces of the flange.



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SEALING, TRIMMING AND FINISHING STRIPS

The invention relates to sealing, trimming and finishing strips. Embodiments of the invention to be described in more detail below comprise flange finishers for fitting around the frames of door openings and other similar openings in motor vehicle bodies, though the invention is not limited to such applications.

According to the invention, there is provided a channel-shaped sealing, trimming and finishing strip for embracing a flange or the like extending around an opening in a motor vehicle body, comprising channel-shaped extruded plastics or rubber material, a resilient carrier embedded in the extruded material, and a plurality of lips mounted on the inside faces of the side walls of the channel so as to extend part way across the channel towards each other, the lips being made of cellular material and the extruded material being of solid form, the side walls of the channel being splayed-apart to allow the channel to be mounted on the flange without substantial contact during the mounting process between the lips and the side faces of the flange, the strip being adapted such that the splayed-apart side walls can thereafter be pressed towards each other so as to press the lips

into subsequently-maintained contact with the side faces of the flange.

Sealing, trimming and finishing strips for use in motor vehicle body construction and embodying the invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawings in which:

Figure 1 is a perspective view of one of the strips;

Figure 2 is an end view of a further one of the strips; and

Figure 3 corresponds to Figure 2 but shows the strip prior to fitting to a flange;

Figure 1 shows one of the strips, at 30. Strip 30 has a channel-shaped gripping section 32 having side walls 32A and 32B. The strip 30 is made of extruded material 34 which is preferably plastics or rubber material and includes an embedded core or carrier 36 which runs along the length of the strip and is completely enclosed within the extruded material 34. The carrier 36 may take any suitable form. For example, it may be in the form of inverted U-shaped metal elements joined together by short

integral connecting links or entirely separated from each other. Instead, it may be a continuous metal channel, perhaps formed with through apertures at intervals. In another form, it can be made of wire looped to and fro. However, other forms of carrier are possible and need not be made of metal. The carrier is preferably incorporated into the extruded material 34 by a cross-head extrusion process.

The extruded material 34 forming the side 32A of the gripping section 32 is extended to form a lip 38 which has a tip 40 advantageously made of softer material such as sponge or foamed material. The material 40 may be integrally extruded with the remainder of the material of the lips.

The opposite side 32B of the channel is extended to form a further lip 42 which, again, may have a softer part 44 made of sponge material.

Finally, the inverted base 32C of the channel of the gripping portion 32 carries a hollow sealing part 46, again advantageously made of sponge or foamed material. The lip 42 and the sealing part 46 may be integrally extruded with the material 34.

The lip 38, the lip 42 and the sealing part 46 are shown by way of example. Other soft sealing parts may be arranged instead.

The inside facing walls of the channel of the gripping part 32 carry lips, there being three such lips 48 on the inside of wall 32A and three such lips 50 on the inside of wall 32B. In this example, lips 48 are all of triangular cross-section, while lips 50 are all of substantially constant cross-section.

In accordance with the feature of the strip being described, each of the lips 48 and 50 is made of foamed, cellular or sponge material and thus softer than the main part of the extruded material 34.

Figure 2 shows a cross-section through a modified form of the strip of Figure 1 and parts in Figure 2 corresponding to those in Figure 1 are similarly referenced. The strip of Figure 2 differs from the strip of Figure 1 only in that the lips on the inside of the channel are the same on both sides of the channel: thus, side 32B carries triangular-shaped lips 48 instead of the constant-cross section lips 50 of Figure 1. Again, all the lips are made of sponge or foamed material.

As indicated in both Figures 1 and 2, an inextensible tape or wire 52 may be mounted within the extruded material 34 and adjacent to the carrier 36 (and either connected to it or not so connected). This inextensible tape or wire prevents inadvertent stretching of the strip in use.

Before being mounted in position on a mounting flange in a motor vehicle body, the strips 30 have an opened-out configuration as shown in Figure 11 (Figure 3 indicates the opened-out configuration for the strip 30 of Figure 2 but the strip 30 of Figure 1 has a similar opened-out configuration). Thus the strips do not have the substantially parallel-sided configuration shown in Figures 1 and 2. Strips with this opened-out configuration shown in Figure 3 can be easily placed over the flange, the lips 48 and 50 being clear of the sides of the flange, or substantially so, during this fitting process. Thereafter, the splayed-apart side walls of the strip are pressed towards each other by a suitable tool so as to alter the configuration of the channel sides into the substantially parallel form shown in Figures 1 and 2, and so that the lips 48 and 50 (or just the lips 48 in the case of Figure 2) are pressed into firm gripping and sealing engagement with the sides of the flange. This process, of applying the strip to the flange with

the channel side walls in splayed-apart configuration and then pressing the side walls towards each other, is disclosed in more detail in our United Kingdom Patent No. 2212844. The alteration of the channel configuration into the generally parallel-sided form can be carried out using a suitable tool. Examples of such suitable tools are shown in our United Kingdom Patent No. 2215762.

When the strip has been fitted to the vehicle, the lip 42 is normally positioned on the inside of the vehicle and is arranged to form a so-called "cosmetic lip", covering over the edge of trim fabric within the vehicle.

If the flange to which the strip is being fitted is the flange running around a luggage compartment opening for example, then the sealing part 46 is partially compressed by the closing lid and provides a weather-proof seal.

The lips 48 and 50 (or the lips 48 in the embodiment of FIGURE 2), being of foamed or sponge material and thus particularly soft, are able to provide very effective sealing against the flange sides. They also can accommodate abrupt changes in contour of the flange such as formed by a step in the flange or

a gap. In addition, the soft material of the lips 48 and 50 (or the lips 48 only in the case of Figure 2) may provide an increased coefficient of friction acting between the lips and the sides of the flange, thus providing improved grip for resisting removal of the strip from the flange.

However, because the strips 30 are applied to the flange with the side walls splayed-apart, there is no risk that the very soft material of the lips 48 and 50 (or of the lips 48 alone) will be damaged during the assembly operation. If the strips 30 were to be applied to a flange in the parallel-sided form shown in Figures 1 and 2, there would be a risk that the soft material of the lips 48 and 50 (or lips 48 alone) would be torn or otherwise damaged by any sharpness in the material of the flange.

Furthermore, the process of pressing the initially splayed-apart channel side walls towards each other so that the lips 48 and 50 (or lips 48 alone) are pressed firmly into contact with the channel side walls provide improved grip which might not otherwise be the case.

The lips 48 and 50 shown in Figure 1 could be reversed in position; thus lips 48 could be positioned on side 32B instead

of side 32A and lips 50 could be placed on side 32A instead of side 32B.

CLAIMS

1. A channel-shaped sealing, trimming and finishing strip for embracing a flange or the like extending around an opening in a motor vehicle body, comprising channel-shaped extruded plastics or rubber material, a resilient carrier embedded in the extruded material, and a plurality of lips mounted on the inside faces of the side walls of the channel so as to extend part way across the channel towards each other, the lips being made of cellular material and the extruded material being of solid form, the side walls of the channel being splayed-apart to allow the channel to be mounted on the flange without substantial contact during the mounting process between the lips and the side faces of the flange, the strip being adapted such that the splayed-apart side walls can thereafter be pressed towards each other so as to press the lips into subsequently-maintained contact with the side faces of the flange.

2. A strip according to claim 1, in which the or each lip on one inside face is essentially triangular-shaped in cross-section with one of the apices of the triangle directed across the channel.

3. A strip according to claim 2, in which the or each lip on

the other side of the channel is also essentially triangular-shaped in cross-section in one of the apices of the triangle directed across the channel.

4. A strip according to claim 2, in which the or each lip on the other side of the channel is not triangular-shaped in cross-section.

5. A strip according to claim 4, in which the or each lip on the said other side of the channel is of substantially constant cross-section.

6. A strip according to any preceding claim, including a soft sealing part mounted on and running along an external surface of the strip.

7. A sealing, trimming, or finishing strip, substantially as described with reference to Figures 1 and 3 of the accompanying drawing.

8. A sealing, trimming, or finishing strip, substantially as described with reference to Figures 2 and 3 of the accompanying drawing.



Applicati n No: GB 9600459.3
Claims searched: 1-8

Examiner: John Rowlatt
Date of search: 27 February 1996

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): E1J: JGN, JM.

Int Cl (Ed.6): B60J: 10/00, 10/02, 10/04, 10/06, 10/08, 10/10, 10/12.

B60R: 13/04, 13/06.

E06B: 7/22, 7/23.

Other: Online: World Patents Index, EDOC, JAPIO.

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
Y	GB2212844A (DRAFTEX INDUSTRIES LIMITED) - see figure 2.	1 & 6
Y	GB1583925A (HAPPICH GmbH) - see figure 11.	1 & 6
X,Y	EP0437964A2 (SCHLEGEL (UK) HOLDINGS LIMITED) - see figure 4 & 5, trim strip initially splayed apart with foamed formation 9.	X: 1 Y: 6
Y	EP0385028A1 (GENCORP INC.) - see figure 3.	1 & 6
Y	EP0117747A2 (THE GENERAL TIRE AND RUBBER COMPANY) - see figure 3, sponge rubber formations 14'; equivalent US 4447065	1 & 6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.